

## CIRCULATION ELEMENT FRAMEWORK

This section identifies changes to the Circulation Element, including a location guide, as endorsed by the Board of Supervisors on August 2, 2006. Upon adoption of GP2020, these changes will be incorporated into the County Public Road Standards.

### OVERVIEW

This document contains proposed changes to the County's Circulation Element (CE) road standards that will be implemented in the following ways:

- **Public Road Standards:** The Public Roads Standards will be modified to incorporate the proposed system of road standards described in this handout, which will provide more options and flexibility for the design of roads in Village, Semi-Rural and Rural Lands.
- **Road Planning Design Manual:** A Road Planning Design Manual will be prepared during the GP2020 process that outlines road design features for specific areas. This manual will also identify when design exceptions may be considered for Village, Semi-Rural and Rural Lands and it will supplement and be consistent with the Public Road Standards.
- **GP2020 Circulation Element:** DPLU and DPW staff worked with communities to map CE roads in appropriate locations as part of the road network planning process. Some road design issues will also be addressed through policies in the Circulation Element.

### PROPOSED STANDARDS

The proposed CE Road Standards in Table 1 include existing, modified, and new CE road classifications. This table is organized into a hierarchy of roads ranging from six to two lanes. Proposed CE road standards are organized by the number of travel lanes and by design speed, which are important factors when determining road capacity and road design. Variations on the road classifications were developed by adding options such as medians or dedicated turn lanes.

Table 1 also includes updated threshold capacities, which are based on Level of Service (LOS) D, the Board-endorsed standard for GP2020. Traffic volumes that exceed the threshold capacity will generate Levels of Service E or F on County roads.

Table 1 establishes a set of minimum standards, but some exceptions are described in the more detailed description of road classifications. In areas that are already developed, the minimum ROW for certain road types may be reduced by using a 10-foot parkway. For the Community Collector and Light Collector series, the With Improvement Options classification requires the right-of-way necessary to construct a four-lane road. Although GP2020 traffic modeling identified the need for a two-lane road, staff wanted to retain the opportunity to construct a four-lane road in the post-GP2020 future. The range of improvement options includes passing lanes, a raised median, and intermittent or continuous turn lanes. The specific improvement options are noted in the Community Summary matrix included in the next section.

**Table 1: Proposed CE Road Standards** — As Endorsed by the Board of Supervisors · August 2, 2006

CE Road Series	Travel Lanes	Design Speed	No.	Name for Road Classification	Road Components	Threshold Capacity (ADT)	Minimum ROW (feet)	Relationship to Public Road Standards
<b>6.1 Expressway</b>	6 lanes	65 mph	6.1	Expressway	Median / Grade-Separated Interchange	86,000	146'	Same as existing Expressway
<b>6.2 Prime Arterial</b>	6 lanes	65 mph	6.2	Prime Arterial	Median / At-Grade Interchange	50,000	122'	Same as existing Prime Arterial
<b>4.1 Major Road Series</b>	4 lanes	55 mph	4.1A	Major Road with Raised Median	Raised Median	33,400	98'	Same as existing Major Road
			4.1B	Major Road with Intermittent Turn Lanes	Intermittent Turn Lanes	30,800	84' to 98'	Same as existing Collector Road
<b>4.2 Boulevard Series</b>	4 lanes	40 mph	4.2A	Boulevard with Raised Median	Raised Median	27,000	106'	New standard
			4.2B	Boulevard with Intermittent Turn Lane	Intermittent Turn Lanes	25,000	92' to 106'	New standard
<b>2.1 Community Collector Series</b>	2 lanes	45 mph	2.1A	Community Collector with Raised Median	Raised Median	15,000	74'	Similar to existing Town Collector (except higher design speed)
			2.1B	Community Collector with Continuous Turn Lane	Continuous Turn Lane	13,500	74'	
			2.1C	Community Collector with Intermittent Turn Lane	Intermittent Turn Lanes	13,500	60' to 74'	New standard
			2.1D	Community Collector with Improvement Options	Raised Median, Continuous Turn Lane, Intermittent Turn Lane	13,500 – 15,000	84'	Similar to existing Rural Collector
			2.1E	Community Collector	None	10,900	60'	Same as existing Light Collector

CE Road Series	Travel Lanes	Design Speed	No.	Name for Road Classification	Road Components	Threshold Capacity (ADT)	Minimum ROW (feet)	Relationship to Public Road Standards
<b>2.2 Light Collector Series</b>	2 lanes	40 mph	2.2A	Light Collector with Raised Median	Raised Median	13,500	78'	Similar to existing Town Collector (except wider parkway, ROW)
			2.2B	Light Collector with Continuous Turn Lane	Continuous Turn Lane	13,500	78'	
			2.2C	Light Collector with Intermittent Turn Lanes	Intermittent Turn Lanes	13,500	64' to 78'	New Standard
			2.2D	Light Collector with Improvement Options	Raised Median, Continuous Turn Lane, Intermittent Turn Lane	13,500	88'	Similar to existing Rural Collector
			2.2E	Light Collector	None	10,900	64'	Similar to existing Rural Light Collector
			2.2F	Light Collector with Reduced Shoulder	Reduced Shoulder	8,700	52'	New Standard (Similar to previous Rural Minor Road)
<b>2.3 Minor Collector Series</b>	2 lanes	35 mph	2.3A	Minor Collector with Raised Median	Raised Median	8,000	82'	New Standard
			2.3B	Minor Collector with Intermittent Turn Lane	Intermittent Turn Lane	8,000	68' to 82'	New Standard
			2.3C	Minor Collector	None	7,000	68'	New Standard

### Relationship to Previous Standards

Use the right hand column of the table to determine the relationship of the existing standards to the GP2020 standards.

Only one previous road type, the Rural Mountain Road, is not represented by a proposed road standard. However, the 2.3 Minor Collector road series would be an appropriate substitute for the Rural Mountain Road in rural, mountainous areas with low traffic volumes.

**TABLE 2: LOCATION GUIDE**

**Table 2** indicates *in order of preference* where to locate different CE road classifications. Road types with lower design speeds are recommended for Villages and for Semi-Rural or Rural Lands with physical constraints. This table should be used in conjunction with other mapping criteria

prepared for GP2020. In order to develop a rational network, road mapping should consider the *predominant* topography or land use patterns, and a change in road classification should occur only at road intersections or another easily identifiable location in the network.

<b>Lanes:</b>	<b>Village / Village Core<sup>Note 1</sup></b>	<b>Semi-Rural</b>	<b>Rural Lands</b>
6 Lane	<i>Limited use only:</i> 6.1 Expressway or 6.2 Prime Arterial	6.1 Expressway or 6.2 Prime Arterial	6.1 Expressway or 6.2 Prime Arterial
4 Lane	<i>1<sup>st</sup> Choice:</i> 4.2 Boulevard <i>Limited use only:</i> 4.1 Major Road	<i>1<sup>st</sup> Choice:</i> 4.1 Major Road <i>Limited use only:</i> 4.2 Boulevard	<i>1<sup>st</sup> Choice:</i> 4.1 Major Road <i>Limited use only:</i> 4.2 Boulevard
2 Lane	<i>1<sup>st</sup> Choice:</i> 2.3 Minor Collector <i>2<sup>nd</sup> Choice:</i> 2.2 Light Collector <i>Limited use only:</i> 2.1 Community Collector	<i>1<sup>st</sup> Choice:</i> 2.2 Light Collector <i>2<sup>nd</sup> Choice:</i> 2.1 Community Collector <i>Limited use:</i> 2.3 Minor Collector	<i>1<sup>st</sup> Choice:</i> 2.1 Community Collector <i>Areas with Physical Constraints:</i> 2.2 Light Collector or 2.3 Minor Collector

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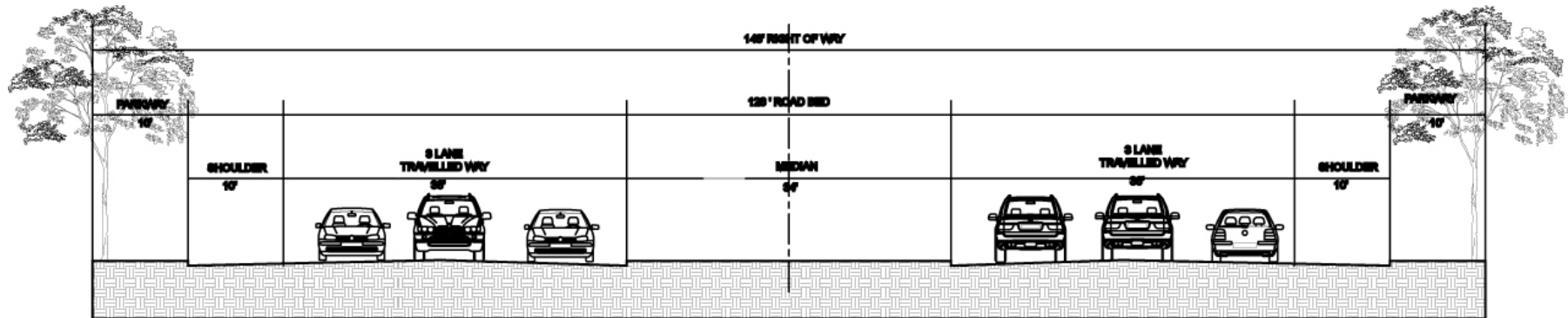
1 Please note that passing lanes are not appropriate for a Village.

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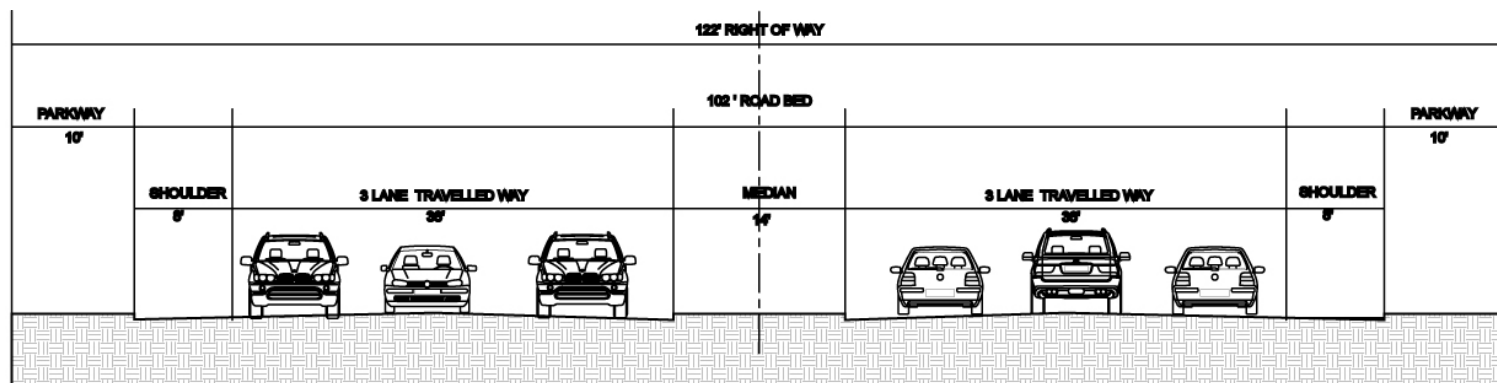
## ROAD STANDARD DESCRIPTIONS

The pages that follow contain detailed descriptions for each road standard. Cross sections are included to illustrate the size and organization of all road components. See the Glossary of Terms for an explanation of terms used in the diagrams.

Please note that a wider Right-of-Way (ROW) will be required for bike lanes identified in the Bicycle Master Plan. Areas called Parkways contain landscaping, utilities, and trails or bicycle paths as required. Additional width may be required for trails (called “pathways” in the Trails Master Plan).



Expressway



Prime Arterial

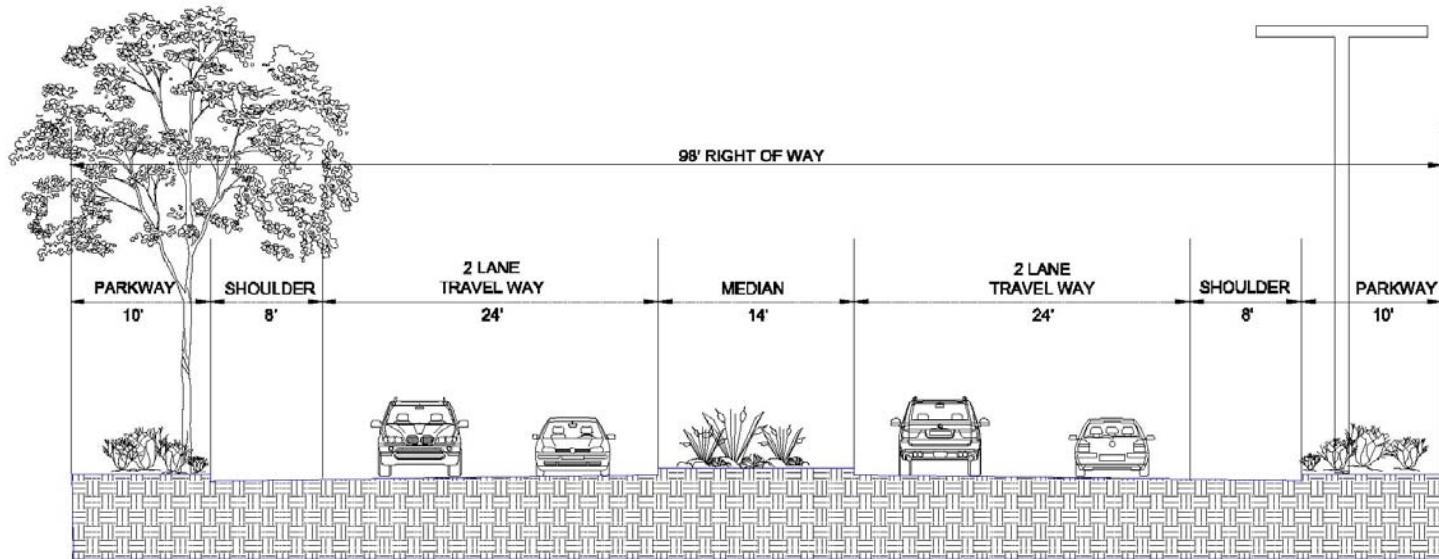
**6.1 EXPRESSWAY / 6.2 PRIME ARTERIAL**

There are two types of 6-lane road classifications, which are designed to accommodate high speed and high volume traffic. Typically, these roadways should be located outside Villages and in areas with limited physical constraints. The median serves as a separation between travel ways, instead of an area for turning or entering adjacent property.

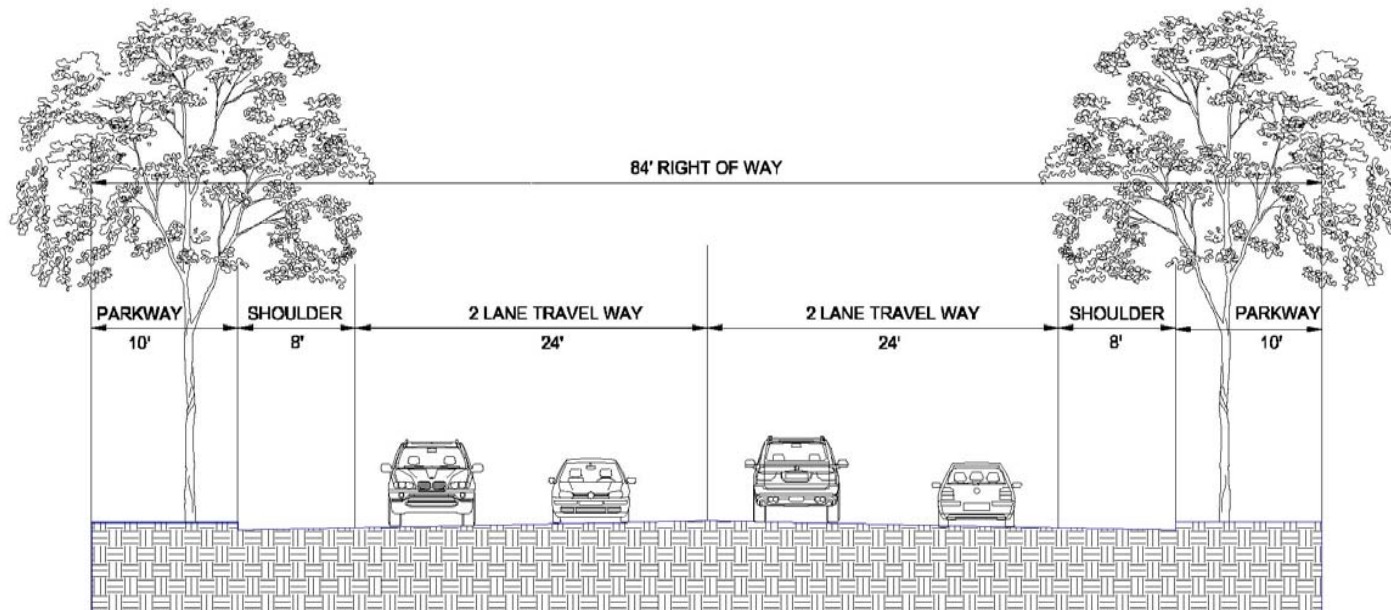
**6.1 Expressway** is the same as the existing Expressway standard — a divided, multi-lane roadway with a wide median and grade separated interchanges. This road type is similar to a CALTRANS Freeway facility.

**6.2 Prime Arterial** is the same as the existing Prime Arterial standard — a divided, multi-lane roadway with a median and at-grade interchanges.

	Minimum Standards		Description
	6.1 Expressway	6.2 Prime Arterial	
<b>Design Speed</b>	65 mph	65 mph	6 travel lanes, 12' each Raised, depressed or flat with optional surface treatments or landscaping Primarily serve as vehicle recovery areas, and parking is restricted. 10' parkway includes landscaping and utilities as required.
<b>Threshold Capacity</b>	86,000 ADT	50,000 ADT	
<b>ROW</b>	146'	122'	
<b>Travel Way</b>	72'	72'	
<b>Medians</b>	34'	14'	
<b>Shoulder</b>	10'	8'	
<b>Parkway</b>	10'	10'	
<b>Interchanges</b>	Grade Separated	At-Grade	



**4.1 A - Major Road with Raised Median**



**4.1 B – Major Road with Intermittent Turn Lanes**



#### 4.1 MAJOR ROAD SERIES

The Major Road is a four-lane roadway that primarily serves medium to high volumes of traffic. Because of its high design speed, this road should typically be located in physically unconstrained areas and its use in Villages should be limited to industrial or heavy commercial areas with low levels of pedestrian and bicycle traffic. In some circumstances, an exception can be made using a modified design speed of 45 mph.

**4.1A – Major Road with Raised Median** (existing Major Road standard) is appropriate for regional travel between

communities where higher traffic volumes are forecast. Potential applications include state highways such as SR67.

**4.1B – Major Road with Intermittent Turn Lanes** is the same as the existing Collector Road standard (the current Public Road Standards provide for intermittent turn lanes for a 4-lane Collector Road). It will typically be used in areas where turning movements are infrequent or where ROW is limited.

	Minimum Standards		Description
	4.1A – Major Road with Raised Median	4.1B – Major Road with Intermittent Turn Lanes	
<b>Design Speed</b>	55 mph	55 mph	45 mph design speed used with exceptions as noted above.
<b>Threshold Capacity</b>	33,400 ADT	30,800 ADT	
<b>ROW</b>	98'	84' to 98'	ROW increases to 98' for intermittent turn lanes.
<b>Travel Way</b>	48'	48'	4 travel lanes, 12' each
<b>Medians</b>	14'	None	Median is raised, depressed or flat with optional surface treatments or landscaping
<b>Shoulder</b>	8'	8'	Parking restriction should be considered due to high speed travel.
<b>Parkway</b>	10'	10'	Typically contains landscaping and utilities. Additional width may be required for trails (pathways).

## 4.2 BOULEVARD SERIES

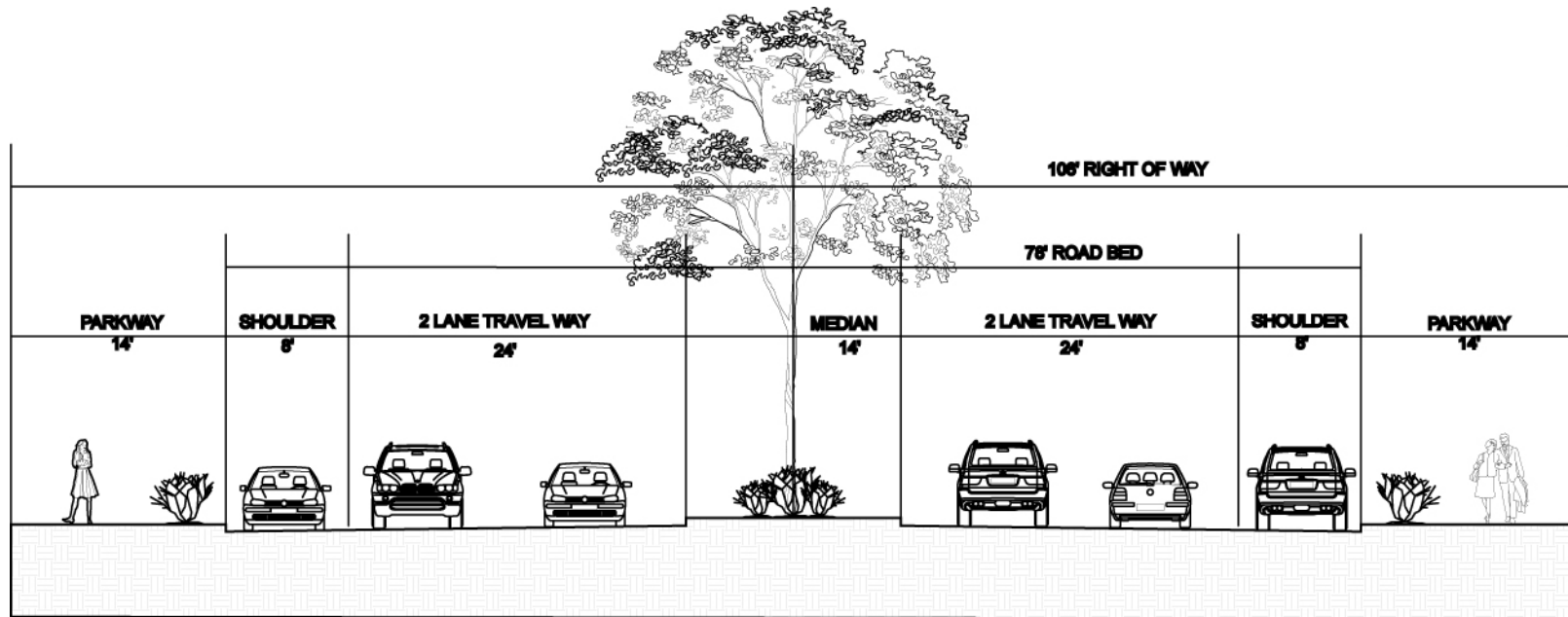
The Boulevard Series is a four-lane roadway with a low design speed and a wider parkway that should be used in Villages where higher traffic volumes are combined with on-street parking, pedestrian, bicycle and transit activities. The Boulevard Series can also be used in rural areas that are constrained by slopes or where the community requests a context sensitive solution.

**4.2A - Boulevard with Raised Median** has a wide parkway that accommodates non-motorized circulation. The median

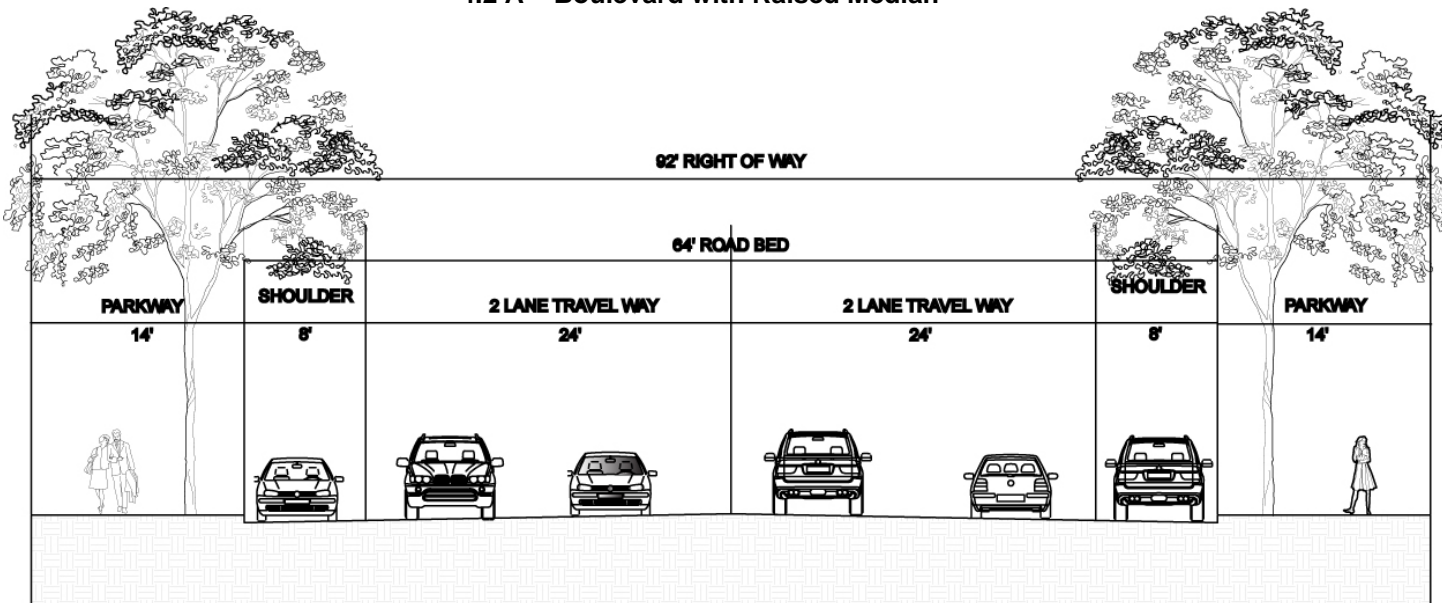
controls access, provides dedicated turn lanes, and increases road capacity. Potential applications include four-lane roadways that traverse villages in Ramona and Valley Center.

**4.2B - Boulevard with Intermittent Turn Lane** has a wide parkway that accommodates non-motorized circulation. This road would typically be used where turning movements are infrequent or where ROW is limited.

	Description		
	4.2A – Boulevard with Raised Median	4.2B – Boulevard with Intermittent Turn Lane	
<b>Design Speed</b>	40 mph	40 mph	
<b>Threshold Capacity</b>	27,000 ADT	25,000 ADT	Capacity is higher for raised median.
<b>ROW</b>	106'	92' to 106'	ROW will increase where bike lanes are required. ROW for Boulevard 4.2B increases to 106' at intersections for dedicated turn lanes.
<b>Travel Way</b>	48'	48'	4 travel lanes, 12' each
<b>Medians</b>	14'	None	14' median is typically raised or depressed with surface treatments or landscaping.
<b>Shoulder</b>	8'	8'	Add additional width for bicycle lanes, as required.
<b>Parkway</b>	14'	14'	Typically contains landscaping, utilities, walkways and/or bicycle paths.



4.2 A – Boulevard with Raised Median



4.2 B – Boulevard with Intermittent Turn Lane

(ROW increases to 106' to accommodate dedicated turn lanes at intersections)

## **TWO LANE ROADS**

2.1 Community Collector Series

2.2 Light Collector Series

2.3 Minor Collector Series

## 2.1 COMMUNITY COLLECTOR SERIES

The Community Collector Series is a two-lane roadway that primarily serves motorized traffic. Because of the higher design speed, it is appropriate for areas with few physical constraints and areas with little pedestrian, bicycle or other non-motorized traffic. This road type could be used for State Highways where physical constraints are limited.

**2.1A - Community Collector with Raised Median** provides more capacity, controls turn movements and improves flow.

**2.1B – Community Collector with Continuous Turn Lane** improves traffic flow in areas with multiple curb cuts.

**2.1C - Community Collector with Intermittent Turn Lane** provides more capacity and improves traffic flow.

**2.1D - Community Collector with Improvement Options** has a wider right-of-way for added flexibility to accommodate improvement options such as turn lanes, medians or passing lanes. Road improvements will be indicated in staff recommendations. Passing lanes are not appropriate for Villages. When a Raised Median option is chosen, the threshold capacity will increase to 15,000.

**2.1E - Community Collector** has no improvement options. It accommodates low to medium traffic volumes in areas where non-motorized traffic and physical constraints are limited

	Community Collector Series: Minimum Standards					Description
	2.1A Raised Median	2.1B Continuous Turn Lane	2.1C Intermittent Turn Lane	2.1D Improvement Options	2.1E (No features)	
<b>Design Speed</b>	45 mph	45 mph	45 mph	45 mph	45 mph	
<b>Threshold Capacity (ADT)</b>	15,000	13,500	13,500	13,500-15,000	10,900	Raised Median option for 2.1D offers 15,000 threshold capacity.
<b>ROW</b>	74'	74'	60' to 74'	84'	60'	Wider ROW required for 2.1C for turn lanes at intersections.
<b>Travel Way</b>	24'	24'	24'	24'	24'	2 travel lanes, 12' each (plus optional passing lane for 2.1D)
<b>Medians</b>	14'	14'	None	None	None	Design Manual will address treatments.
<b>Shoulder</b>	8'	8'	8'	8'	8'	Add additional width for bicycle lanes.
<b>Parkway</b>	10'	10'	10'	22'	10'	2.1D is wider for passing lane option.

## 2.2 LIGHT COLLECTOR SERIES

Light Collectors are 2-lane roads with a lower design speed and wider parkway than the Community Collector standard. They can be used in rural areas with medium physical constraints or in urbanized areas with moderate levels of non-motorized circulation.

**2.2A - Light Collector with Raised Median** has a median that provides more capacity, controls turn movements and improves traffic flow.

**2.2B - Light Collector with Continuous Turn Lane** improves traffic flow in areas with multiple curb cuts.

**2.2C – Light Collector with Intermittent Turn Lanes** has intermittent, dedicated turn lanes that provide more capacity and improve traffic flow.

**2.2D - Light Collector with Improvement Options** has a wider right-of-way for added flexibility to accommodate improvement options such as turn lanes, medians or passing lanes. It can be used for roads within the State Highway system that traverse through physically constrained land, but passing lanes would not be appropriate in Villages. Road improvements will be indicated in staff recommendations.

**2.2E - Light Collector** has no special features. It accommodates low to medium traffic volumes where non-motorized traffic and physical constraints are limited.

**2.2 F - Light Collector with Reduced Shoulder** has a two foot shoulder, a rolled curb with graded pathway, and a narrow right-of-way.

	Light Collector Series: Minimum Standards						Description
	2.2A Raised Median	2.2B Continuous Turn Lane	2.2C Intermittent Turn Lanes	2.2D Improvement Options	2.2E (No Features)	2.2F Reduced shoulder	
<b>Design Speed</b>	40 mph	40 mph	40 mph	40 mph	40 mph	40 mph	
<b>Threshold Capacity (ADT)</b>	13,500	13,500	13,500	13,500	10,900	8,700	
<b>ROW</b>	78'	78'	64' to 78'	88'	64'	52'	Wide ROW for 2.2D accommodates turn lanes at intersections
<b>Travel Way</b>	24'	24'	24'	24'	24'	24'	2 travel lanes, 12' each (plus optional passing lane for 2.2A)
<b>Medians</b>	14'	14'	None	None	None	None	Design Manual will address treatments.
<b>Shoulder</b>	8'	8'	8'	8'	8'	2'	Add 5' for bicycle lanes, if required
<b>Parkway</b>	12'	12'	12'	24'	12'	12'	

## 2.3 MINOR COLLECTOR SERIES

The Minor Collector is a two-lane roadway with a very low design speed that is appropriate for rural areas that are highly constrained and for areas within a Village with heavy pedestrian, bicycle and transit activities. This standard could also be used in Semi-Rural areas with high levels of “side friction”, or access from adjacent parcels.

Minor Collectors have a wide parkway that, in rural areas, can be used to grade slopes and improve visibility or to improve tight curves. In more urbanized areas, the wide parkway can be used for pedestrian and bicycle paths and for landscape buffers between vehicular and non-vehicular circulation.

**2.3A - Minor Collector with Raised Median** has a raised or depressed median with dedicated turn lanes and controlled turn movements that improve traffic flow and add rural character when the median is landscaped.

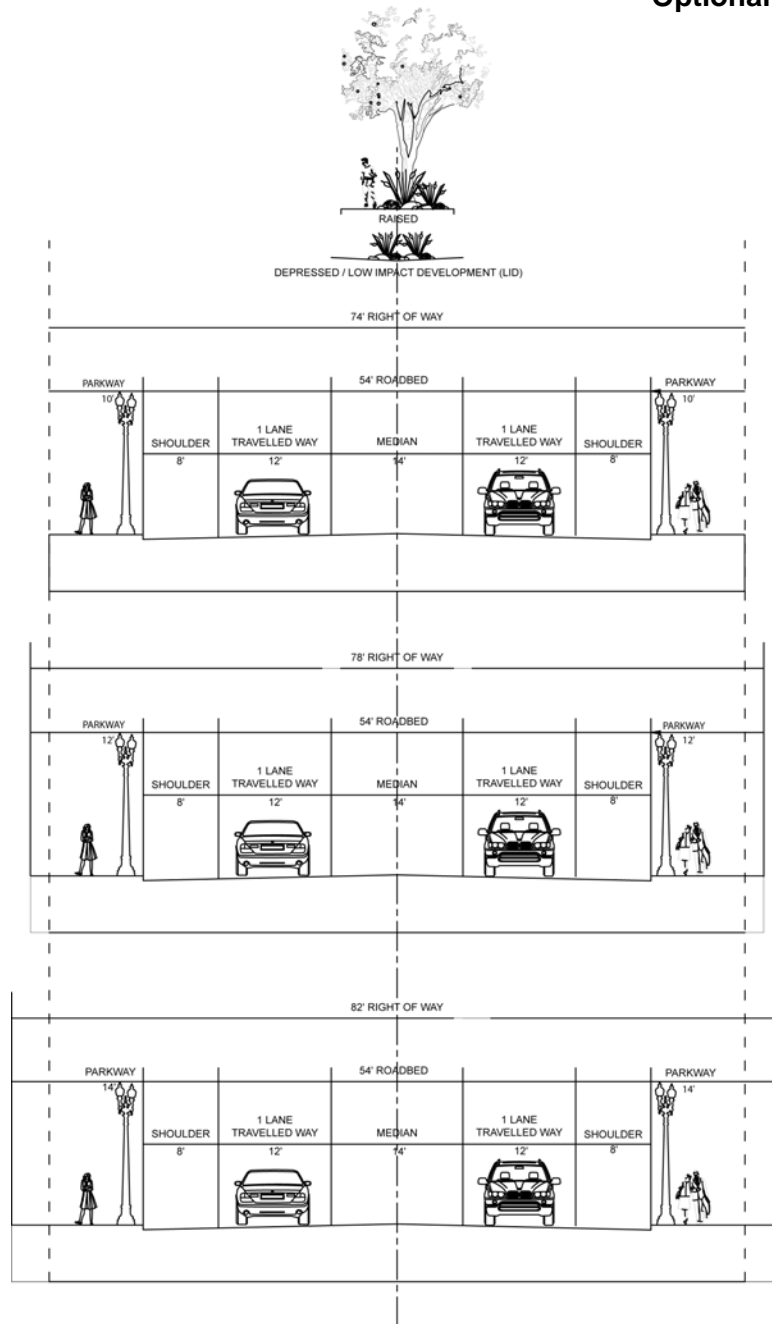
**2.3B - Minor Collector with Intermittent Turn Lane** improves traffic flow in areas with multiple curb cuts.

**2.3C – Minor Collector** has no additional features and is primarily intended for residential neighborhoods or for rural areas with steep slopes and physical constraints.

	Minor Collector Series: Minimum Standards			Description
	2.3A Raised Median	2.3B Intermittent Turn Lane	2.3C (No Features)	
<b>Design Speed</b>	35 mph	35 mph	35 mph	
<b>Threshold Capacity (ADT)</b>	8,000 ADT	8,000 ADT	7,000 ADT	
<b>ROW</b>	82'	82'	68'	Wider ROW required for bike lanes.
<b>Travel Way</b>	24'	24'	24'	2 travel lanes, 12' each
<b>Medians</b>	14'	14'	None	Median is typically raised or depressed with optional surface treatments or landscaping
<b>Shoulder</b>	8'	8'	8'	Add 5' for bike lanes, if required
<b>Parkway</b>	14'	14'	14'	Parkway includes landscaping, utilities, trails or bicycle paths, as required

## TYPICAL CROSS SECTIONS

### Optional Features and Parkway Widths



#### 2.1 Community Collector

#### 2.2 Light Collector Series

#### 2.3 Minor Collector Series

Typical cross sections are shown on the following pages for the Light Collector series. The Community Collector and Minor Collector series are the same as those shown for the Light Collector Series *except* for the parkway width and right-of-way. Typical parkway widths are:

- 2.1 Community Collector = 10'
- 2.2 Light Collector = 12'
- 2.3 Minor Collector = 14'

Exceptions to Parkway widths are noted on the detail sheets under "Improvement Option D" for the Community Collector and Light Collector series and will accommodate additional width needed for a improvement options including a passing lane.

Medians can be designed as Raised, Depressed (Low Impact Design) or Continuous Turn Lanes. Continuous Turn Lanes can be designed with islands to help direct and calm traffic. An Intermittent Turn Lane will require 14' additional ROW in the area needed to accommodate the turn pocket.

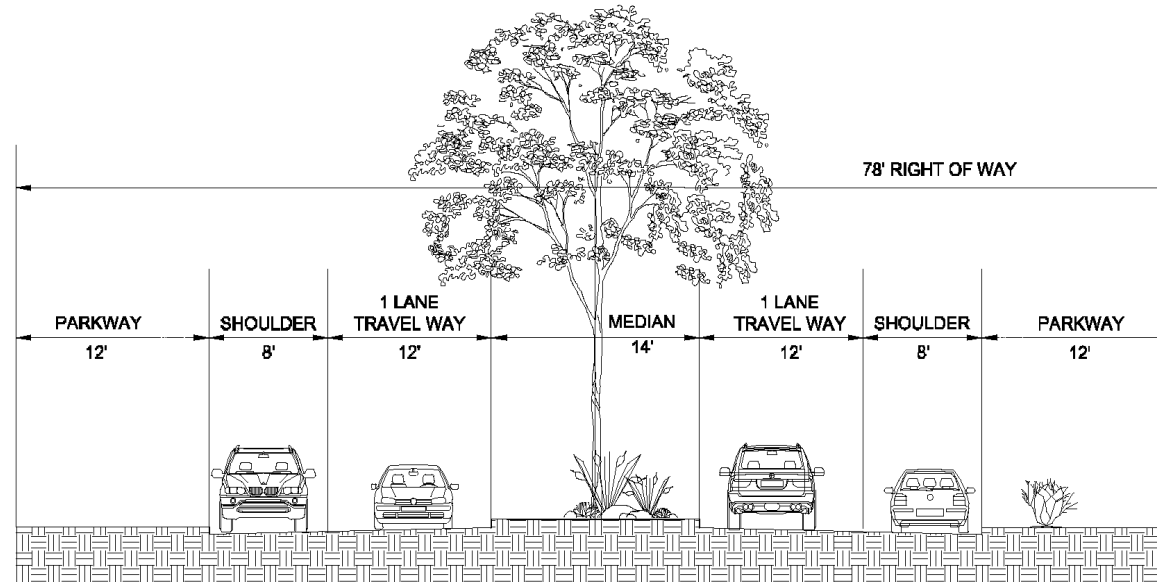
Additional design features in parkways and for medians will be outlined in a Road Design Planning Manual.

Note: The minimum ROW for a 2.2 Light Collector and 2.3 Minor Collector may be reduced if located in an area that is already developed. A reduced ROW can be achieved by using a 10' minimum parkway. This solution should not be used where adequate ROW is available for the 12' or 14' parkway standard.



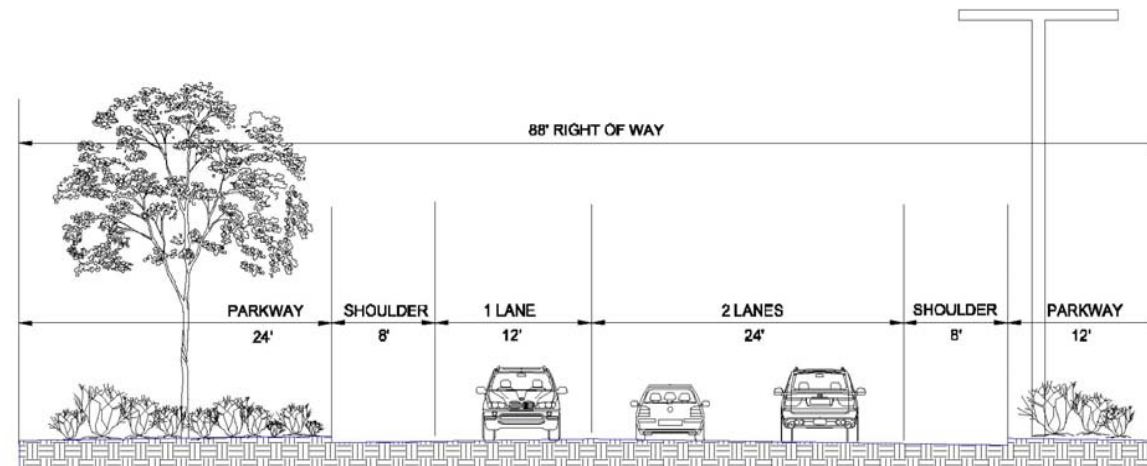
## TYPICAL CROSS SECTIONS

### 2.2 Light Collector Series



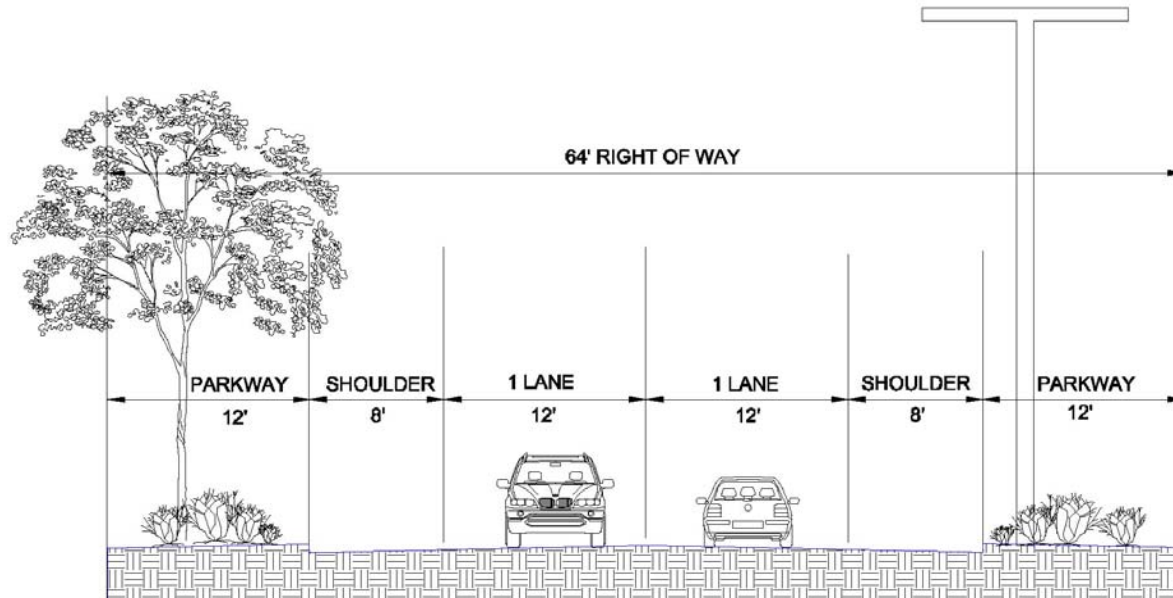
#### 2.2A - Light Collector with Raised Median

Cross Section for 2.2B, Light Collector with Continuous Turn Lane, is similar except for median type.



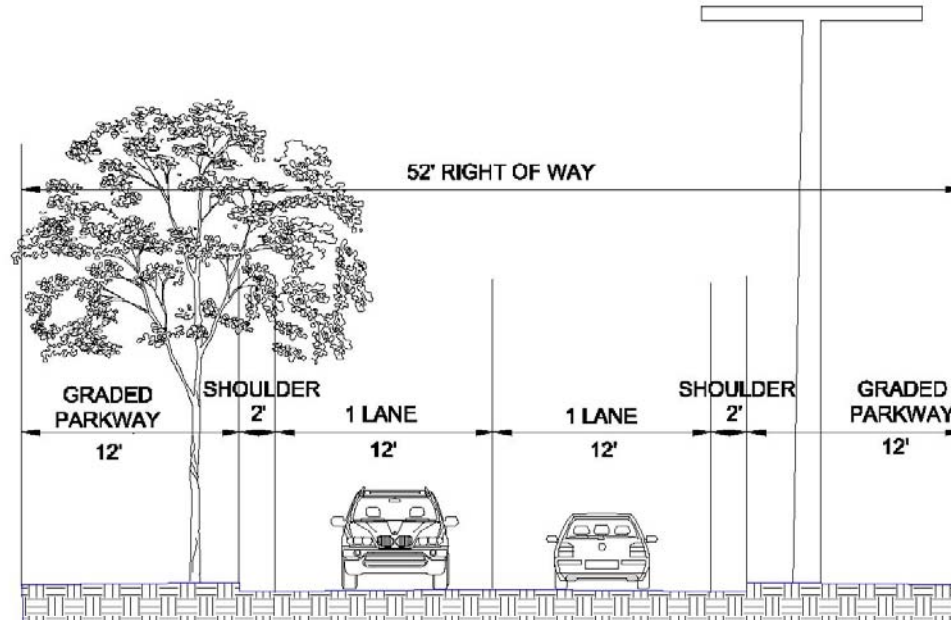
#### 2.2D - Light Collector with Improvement Options

Shown with passing lane option in one direction.



### 2.2E - Light Collector

Cross section for 2.2 C is similar except at intersections, which contain a 14' dedicated turn lane that produces a wider ROW.



### 2.2F - Light Collector with Reduced Shoulder